

S/186/61/003/005/020/022  
E111/E485

AUTHORS Nefedov, V.D. , Lortchov, O.V.  
TITLE A constant carrierless  $Tl^{206}$  source  
PERIODICAL Radiokhimiya, v. 3, no. 5, 1961, 639

TEXT The authors describe a method of production of preparations of  $Tl^{206}$  without carrier. This method can also be used for detecting the presence of  $Bi^{210}$  in bismuth preparations. It is known that if  $Bi^{210}$  obtained by neutron irradiation of bismuth is introduced into an organometallic compound  $[(C_6H_5)_3Bi$  or  $(C_6H_5)_3BiCl_2]$ , this preparation can serve as a carrierless  $Tl^{206}$  source. The metallic bismuth was neutron irradiated for a long time and then kept for half a year. After this it was dissolved and repeatedly cleaned from polonium. As most convenient starting compound,  $(C_6H_5)_3BiCl_2$  was chosen being more stable than  $(C_6H_5)_3Bi$ . In this case,  $Tl^{206}$  was extracted from the benzene solution  $(C_6H_5)_3Bi^*Cl_2$  by 5% hydrochloric acid. In the case of  $(C_6H_5)_3Bi^*Tl^{206}$  was extracted from the ethereal solution of the bismuth organic compound by water. It was found that the yield of  $Tl^{206}$  was higher if it was directly separated on  $MnO_2$  from the benzene solution by addition of a few drops of

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A constant carrierless  $Tl^{206}$  source

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$KMnO_4$  in acetone and hydrogen peroxide. This proved that part of the resulting  $Tl^{206}$  is in the form of organo-metallic compounds. To identify  $Tl^{206}$  from the half-life period it was isolated from the enriched fraction with an isotope carrier in the form of  $Tl(OH)_3$  or by adsorption on  $MnO_2$ . The half-life period  $T$  was found from the equation

$$T = -t \frac{0.501}{\log A_{2t} - \log A_t}$$

where  $t$  is a definite time interval at which activity determinations were made.  $A_t$  is the number of disintegrations in time  $t$  and  $A_{2t}$  that in time  $2t$ .  $T$  values (minutes) obtained were 4.5, 4.8, 4.9. There are 1 figure and 5 references. The three references to English language publications read as follows.  
Ref 1 H.M. Neumann, J.J. Howland, I. Perlman, Phys. Rev., 77, 720 (1950).  
Ref 2 H.B. Levy, I. Perlman, Phys. Rev., 85, 758 (1952).  
Ref 3 H.B. Levy, I. Perlman, Phys. Rev., 94, 152 (1954).

Card 2/2

5/186/62/004/003/016/022  
E075/L436

AUTHORS: Nefedov, V.O., Kirin, I.S., Zaytsev, V.M.

TITLE: Chemical changes during the processes of  $\beta$ -decay of  $Sb^{125}$  entering into the composition of some phenyl and tolyl derivatives

J. BIO. LEV: Radiokhimiya, v.4, no.3, 1962, 351-355

TEXT: Chemical changes were studied for the  $\beta$ -decay processes of  $Sb^{125}$  in derivatives of type  $Sb^{125}R_3$  and  $Sb^{125}R_3Cl_2$  using paper chromatography. It was shown that the changes can be utilized to obtain new methods for the synthesis of  $Te(C_6H_5)_2$ ,  $Te(C_6H_5)_2Cl_2$ ,  $Te(C_6H_5)_3Cl$ ,  $Te(p-CH_3C_6H_4)_2$ ,  $Te(p-CH_3C_6H_4)_2Cl_2$  and  $Te(p-CH_3C_6H_4)_3Cl$ . The main product resulting from the decay of  $Sb^{125}R_3$  was in the form of  $TeR_3Cl$  and  $TeR_2$ .  $TePh_3Cl$  was produced with  $27 \pm 3\%$  yield and  $TeTol_3Cl$  with  $29 \pm 3\%$  yield. The compounds are believed to be products of stabilization of primary ion  $Te^{125m}TeR_3^+$ . It is also believed that detachment of the positively charged radical takes place from the excited molecular ion  $TeR_3^+$ , leading to the stabilization of a considerable proportion of  $Te^{125m}$  in the form of primary fragmentation product

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Chemical changes during the ...

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of  $\text{TeR}_2$ . This proceeds according to the equation  
 $\text{TeR}_3 \longrightarrow \text{TeR}_2 + \text{R}^\cdot$ . There are 2 figures and 1 table.

SUBMITTED: March 25, 1961

ard 2/2

NEFEDOV, V.D.; SINOTOVA, Ye.N.; SUN'SHU-CHZHEN'

Separation of nuclear isomers of zinc. Radiokhimiya  
4 no.4:497-498 '62. (MIRA 15:11)  
(Zinc—Isotopes) (Nuclei, Atomic)

NEFEDOV, V.D.; KHARITONOV, N.P.; LI DE-FU [Li Tieh-fu]; GUSEV, Yu.K.;  
SKOROBOGATOV, G.A.; SMIRNOV-AVERIN, A.P.; SEVAST'YANOV, Yu.G.;  
KHUDBIN, Yu.I.

Tritiation of organosilicon compounds by the method of rebounding  
tritium atoms. Zhur.ob.khim. 32 no.2:614-618 P '62. (MIRA 15:2)

1. Institut khimii silikatov AN SSSR i Leningradskiy  
gosudarstvennyy universitet.

(Silicon organic compounds)

(Tritium)

NEFEDOV, V.D.; GRACHEV, S.A.; GRANT, Z.A.

Separation of p-tolyl derivatives of tellurium by paper chromatography. Zhur.ob.khim. 32 no.4:1179-1182 Ap '62. (MIRA 15:4)

1. Leningradskiy gosudarstvennyy universitet.  
(Tellurium--Analysis) (Paper chromatography)

NEFEDOV, V.D.; NORSEYEV, Yu.V.; SAVLEVICH, Kh.; SINOTOVA, Ye.N.; TOROPOVA, M.A.; KHALKIN, V.A.

Synthesis of some heteroorganic derivatives of polyvalent  
astatine. Dokl.AN SSSR 144 no.4:806-809 Je '62. (MIRA 15:5)

1. Leningradskiy gosudarstvennyy universitet im. A.A.Zhdanova.  
Predstavleno akademikom A.N.Nesmeyanovym.  
(Astatine)



S/079/63/033/001/001/023  
D403/D307

AUTHORS: Nefedov, V. D., Toropova, M. A., Grachev, S. A., and  
Grant, Z. A.

TITLE: Chemical changes during the  $\beta$ -disintegration of RaE  
and their utilization for the synthesis of p-tolyl  
derivatives of polonium

PERIODICAL: Zhurnal obshchey khimii, v. 33, no. 1, 1963, 15-18

TEXT: A discussion is first given of the possibility of using the  
chemical changes occurring during the disintegration of RaE com-  
pounds particularly aromatic organometallics, for the synthesis  
of Po derivatives, proposing that the nature of the parent molecule  
should exert a strong effect on the character of chemical changes  
during the  $\beta$ -disintegration. Confirmation of this proposition and  
application of the above chemical changes to synthesis of the or-  
ganometallic compounds of Po, At, Fr, etc. were the chief objects  
of this work. The compounds studied were  $\text{Bi(RaE)Tol}_3$  and  $\text{Bi(RaE)-}$

$\text{Tol}_3\text{Cl}_2$ , where Tol=tolyl, using paper chromatography to separate  
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Chemical changes during ...

S/079/63/033/001/001/023  
D403/D307

and identify the Po derivatives formed. Analogous Te compounds were used as carriers for the Po derivatives. The best eluents were found to be MeOH-H<sub>2</sub>O and (CH<sub>3</sub>)<sub>2</sub>CO-MeOH-H<sub>2</sub>O, taken respectively in the proportions of 3:1 and 4:3:2 by volume. The following new compounds were found: Po(p-Tol)<sub>2</sub>, (p-Tol)<sub>2</sub>PoCl<sub>2</sub>, (p-Tol)PoCl<sub>3</sub> and (p-Tol)<sub>3</sub>PoCl, as well as some inorganic Po. The relative proportions of these products confirmed that the nature and properties of the parent compound strongly affect the chemical changes. The advice and assistance of G. A. Razuvayev and A.N. Murin is acknowledged. There are 3 figures and 2 tables.

SUBMITTED: February 26, 1962

Card 2/2

8/079/63/033/002/001/009  
D403/3507

**AUTHORS:** Mefedev, V.B., Grachev, S.A. and Glavka, S.

**TITLE:** Study of chemical changes occurring during the  $\beta$  - disintegration of RaE contained in its naphthyl derivatives

**PERIODICAL:** Zhurnal obshchey khimii, v. 33, no. 2, 1963, 333 - 339

**TEXT:** Continuation of earlier studies (DAN SSSR, 133, 123 (1960); ZhObKh, 31, 15 (1963)) which showed that consequences of  $\beta$  - disintegration may be used to initiate hitherto unknown synthetic methods. Po was accumulated in  $(\alpha - C_{10}H_7)_3 Bi(RaE)$  and  $(\alpha - C_{10}H_7)_3 Bi(RaE)Cl_2$ , which were irradiated with neutrons at a flux of  $10^6$  n/sec.  $cm^{-2}$ , and the products were separated by paper chromatography, using the corresponding Te compounds as carriers. The latter compounds were labelled with  $Te^{127}$ . Quantitative analysis of the chromatograms was carried out by the  $\beta$  - activity of  $Te^{127}$  and by the  $\alpha$  - activity of Po. The chromatographic procedure is described in some detail.  $(\alpha - C_{10}H_7)_2 Po$ .

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Study of chemical changes ...

S/073/63/033/002/001/009  
D403/D307

$(\alpha\text{-C}_{10}\text{H}_7)_2\text{FeCl}_2$  and  $(\alpha\text{-C}_{10}\text{H}_7)_3\text{FeCl}$  were formed; these compounds are new. A small amount of inorganic Fe, (2 - 6 %), was also found. Mechanism of chemical changes initiated by  $\beta$  - disintegration of  $\text{CaH}$  is discussed. The most important processes are those which give rise to singly charged primary molecular ions, the structure of which depends on many factors. There are 4 figures and 5 tables.

SUMMITTEL: February 26, 1962

Card 2/2

NEFEDOV, V.D.; SKOROBOGATOV, G.A.; NOVAK, K.; PLUCHENNIK, G.; GUSEV, Yu.K.

Use of a double tag for detecting glycine formed from  
O-methylene- $C^{14}$  succinic acid as a result of carbon- $^{14}$  decay.  
Zhur.ob.khim. 33 no.2:339-342 F '63. (MIRA 16:2)

1. Leningradskiy gosudarstvennyy universitet.  
(Glycine) (Succinic acid) (Carbon isotopes--Decay)

NEFEDOV, V.D.; KIRIN, I.S.; ZAYTSEV, V.M.; SEMENOV, G.A.; DZEVITSKIY, B.E.

Use of multiple tagged compounds in the study of the mechanism of  
antimony isotopic exchange in its methyl derivatives. Zhur.ob.khim.  
33 no.7:2407-2410 J1 '63. (MIRA 16:8)  
(Antimony organic compounds) (Deuterium compounds)  
(Antimony isotopes)

VOBETSKY, M.; NEFEDOV, V.D.; SIMOTOVA, Ye.N.

Thin-layer chromatography of certain heteroorganic compounds.

Zhur.ob.khim. 33 no.12:4023-4024 D '63.

(MIRA 17:3)

NEPELOV, V.D.; KIRIN, I.S.; MAYTSEV, V.M.

Chemical changes in the composition of pectyl derivatives of  
pentavalent antimony during  $\beta$ -decay of  $^{125}\text{Sb}$ . Radiokhimiya 6  
no. 1:78-85 '64. (MIRA 17:6)



L 18945-65 EWT(m)/EPP(c)/EWP(j) Pc-L/Pr-L AS(mp)-2 RM

ACCESSION NR: AP4049469

S/0079/64/034/011/3719/3723

AUTHOR: Nefedov, V. D.; Zhuravlev, V. Ye.; Toropova, M. A.

TITLE: Some organopolonium compounds

SOURCE: Zhurnal obshchey khimii, v. 34, no. 11, 1964, 3719-3723

TOPIC TAGS: polonium, organopolonium compound, phenylpolonium, organotellurium compound, Grignard reagent, chromatography

ABSTRACT: The object of the work was to study the preparation of certain phenyl derivatives of polonium by means of a method developed for the corresponding compounds of tellurium. Tellurium-polonium tetrachloride,  $\text{Te(Po)Cl}_4$ , was used as the starting material for the synthesis of all the compounds. The organic derivatives of polonium were identified by means of partition paper chromatography from the  $\alpha$  activity of  $\text{Po}^{210}$  and  $\beta$  and  $\gamma$  activity of  $\text{Te}^{127}$ , the isotope with which tellurium was labeled. The yield of organic compounds of polonium and tellurium was determined by comparing the activities of these elements in the initial and final compounds. Tellurium polonium triphenyl chloride,  $\text{Te(Po)(C}_6\text{H}_5)_3\text{Cl}$ , was prepared by means of a Grignard reagent reacted with  $\text{Te(Po)Cl}_4$ .  $R_f$  values for  $\text{Te(Po)(C}_6\text{H}_5)_3\text{X}$  type compounds were determined for the developing systems used in the chromatographic identification. Diphenylpolonium and polonium diphenyl dichloride

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L 18945-65

ACCESSION NR: AP4049469

were prepared, also by means of a Grignard reagent. The chlorination of diphenyltellurium-polonium is described.  $R_f$  values are also given for  $PoOCl_2$ ,  $PoCl_4$ ,  $Te(Po)(C_6H_5)_2$ ,  $Te(C_6H_5)_2Cl_2$ , and  $Po(C_6H_5)_2Cl_2$ . Finally, the interaction of diphenyltellurium-polonium with tellurium diphenyl dichloride is elucidated. Orig. art. has: 5 figures and 4 tables.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet (Leningrad State University)

SUBMITTED: 05Jul63

ENCL: 00

SUB CODE: OC, IC

NO REF SOV: 002

OTHER: 004

Card 2/2

NEFEDOV, V.D., ZHURAVLEV, V.Ye.; TOROPOVA, M.A., LEVCHANE, A.I.

Chemical changes during  $\beta$ -decay of  $^{210}\text{Po}$  in  $\text{Bi}_2\text{O}_3$  crystals. Radiokhimiya v no. 51532 '64.

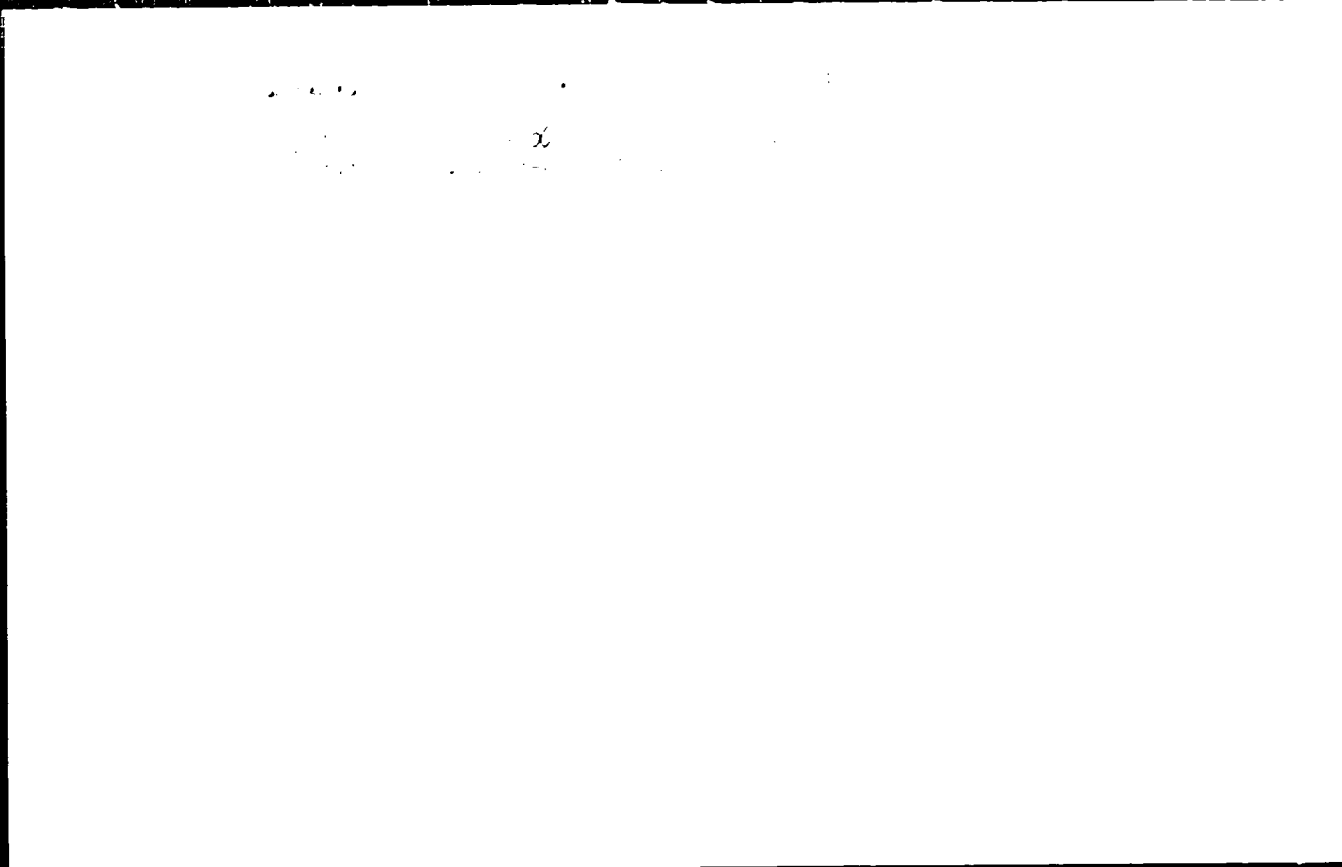
NEFEDOV, V.D.; SHURAVLEV, V. Ye.; TOROPOVA, M.A.

Some organopolonium compounds. Zhur. ob. khim. 34 no.11:  
3719-3723 N '64 (MIRA 18:1)

1. Leningradskiy gosudarstvennyy universitet.

"APPROVED FOR RELEASE: Wednesday, June 21, 2000

CIA-RDP86-00513R001136



APPROVED FOR RELEASE: Wednesday, June 21, 2000

CIA-RDP86-00513R001136

NEFEDOV, V.D.; ZHURAVLEV, V.Ye.; TOROPOVA, M.A.; GRACHEVA, L.N.;  
LEVCHENKO, A.V.

p-Anisyl derivatives of polonium. Radiokhimiia 7 no.2:245-246  
'65. (MIRA 18:6)

NECHAYEV, B.P.; NEFEDOV, V.D.; KHARITONOV, N.P.; SKOROBOGATOV, G.A.

Chemical effects of  $N^{14}$  (n, p)  $C^{14}$  reaction in triethylsilylamine.  
Izv. AN SSSR. Ser. khim. no.7:1266-1267 '65. (MIRA 18:7)

1. Institut khimii silikatov AN SSSR i Leningradskiy gosudarstvennyy  
universitet im. A.A.Zhdanova.

NEFEDOV, I.I.; ZHURAVLEV, V.Ye.; TOROPOVA, M.A.; GRYABOV, I.A.; LEVITSKY,  
A.V.

Synthesis of some p-tolyl derivatives of polonium. *Dokl. Akad. Nauk SSSR*,  
khim. 35 no.8:1436-1440 Ag '65. (MIRA 18:8)

1. Leningradskiy gosudarstvennyy universitet.





L 29279-66 ENP(j)/ENT(m)/T RM

ACC NR: AP6019319

SOURCE CODE: UR/0079/65/035/008/1436/1440

AUTHOR: Mafedov, V. D.; Zhuravlev, V. Ye.; Toropova, M. A.; Grachev, S. A.;  
Levchenko, A. V.

50  
B

ORG: Leningrad State University (Leningradskiy gosudarstvennyy universitet)

TITLE: Synthesis of some p-tolyl derivatives of polonium 1

SOURCE: Zhurnal obshchey khimii, v. 35, no. 8, 1965, 1436-1440

TOPIC TAGS: organic synthetic process, polonium compound, bismuth, tellurium, chemical precipitation, chromatography, bromination, iodinated organic compound, organometallic compound, radioisotope, radiation chemistry

ABSTRACT:  $Po^{210}$  was separated from irradiated Bi by coprecipitation with Te from an HCl solution, using  $SnCl_2$ . A mixture of  $TeCl_4$  and  $PoCl_4$  was then prepared by chlorination of elemental Te containing  $Te^{127}$  and  $Po^{210}$ . Starting with  $Te(Po)Cl_4$ , p-tolyl derivatives of Po were prepared together with the analogous derivatives of Te by conventional chemical methods.  $Te(Po)(p-MeC_6H_4)_2$ , the initial organoelemental compound from which  $Po(p-MeC_6H_4)_2Hal_2$  ( $Hal = F, Cl, Br, I$ ),  $Po(p-MeC_6H_4)_3Hal$  ( $Hal = Cl, I$ ), and  $Po(p-MeC_6H_4)_3Cl.HgCl_2$  were prepared, could not be separated into

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UDC: 57.599

L 29279-66

ACC NO. AF6019319

the Po and Te derivatives by chromatography, because the  $R_f$  values of the two compounds were practically the same. For the separation of the other derivatives, distribution chromatography on paper was applied, using suitable mixtures of solvents. The alpha-activity of  $Po^{210}$  and the beta and gamma-activities of  $Te^{127}$  were then determined on the chromatograms. Bromination and iodination of  $Te(Po)(p-MeC_6H_4)_2$  to prepare the dihalides  $Te(Po)(p-MeC_6H_4)Hal_2$  was carried out by means of  $Te(p-MeC_6H_4)_2Hal$  ( $Hal = Br, I$ ) in a benzene solution; treatment of  $Te(Po)(p-MeC_6H_4)_2$  with  $Br_2$  or  $I_2$  resulted in an impoverishment of crystals of the mixed compound in the organometallic derivative of Po because of the low tendency of the latter to crystallize. To convert  $Te(Po)(p-MeC_6H_4)_2$  to the difluoride,  $Si(p-MeC_6H_4)_2F_2$  was applied in an analogous reaction. The  $R_f$  value of every Po and Te compound prepared was determined for the solvents used in the chromatographic analysis. Orig. art. has: 5 figures, 3 formulas, and 1 table. [JRG]

SUB CODE: 07. 18 / SUM DATE: 19May64 / ORIG REF: 002 / OTH REF: 002

Card 2/2 C.C.

VOBETSKY, M.; NEFEDOV, V.D.; SINOTOVA, Ye.N.

Study of the chromatographic behavior of some organotellurium compounds in thin layers of aluminum oxide. Zhur. ob. khim. 3<sup>o</sup> no.9:1684-1687 S '65.  
(MIRA 18:10)

1. Leningradskiy gosudarstvennyy universitet.

MURIN, A.N.; KIRIN, I.S.; NEFEDOV, V.D.; GRACHEV, S.A.; GUSEV, Yu.K.

Chemical changes in the  $\beta$ -decay of iodine isotopes as a method  
of synthesizing xenon compounds. Dokl. AN SSSR 141 no.3:511-513  
M.: '65. (MIRA 18:4)

1. Fiziko-tekhnicheskiy institut im. A.F.Ioffe AN S.S.S.R. Submitted September 21, 1964.



MEFEDOV, V.P.

Portable electric apparatus for cutting glass pipes. [Suggested by  
V.P.Mefedov] Rats. i isobr. predl. v stroi. no.145:21-25 '56.  
(MIRA 10:3)

(Pipe, Glass) (Glass cutting)

NEFEDOV, V. G.

PA 1000

USSR/Bronze - Drawing  
Bronze ingots

May/Jun 1947

"Effect of the Porous Zone of Ingots on the  
Formation of Press Shrinkage during Hot Drawing  
of the Bars," V. G. Nefedov, Irkutsk Factory of  
Heavy Machine Industry, 7 pp

"Tsvetnyye Metally" No 3

Effect on bars when the porous zone is next to the  
press and when it is next to the die. Examples of  
drawing of BrA Mts 9-2 bronze and Br AZh Mts 10-3-1,  
5 bronze. Internal friction in drawn bars.

16897



MOLCHANINOV, Ivan Il'ich; NEFEDOV, Viktor Grigor'yevich; MIKHNEVICH,  
A.Ye., red.; TSYURKO, M.I., tekhn. red.

[Intercollective farm cooperatives in Orenburg Province] Mez-  
kolkhoznye ob"edineniia v Orenburgskoi oblasti. Orenburg, Oren-  
burskoe knizhnoe izd-vo, 1960. 29 p. (MIRA 14:10)  
(Orenburg Province--Collective farms--Interfarm cooperation)

KHELINSKIY, M.A., prof.; KAMADOV, V.I., dots.; BERSUKOV, G.P., assistant

Fat embolism in intraosseal fixation of bone fractures. Khirurgiya  
33 no.10:143-147 O '57. (MIRA 11:2)

1. Iz gosspital'noy khirurgicheskoy kliniki (zav. - prof. M.A.  
Khelinskiy) Khabarovskogo meditsinskogo instituta (dir. - dotsent  
S.K.Nechepayev)

(FRACTURES, surg.

intraosseal fixation, compl., fat embolism (Rus))

(EMBOLISM

fat, incidence in intraosseal fixation of bone fract.  
(Rus))

NEP-AN, 1.1.

Multiplet structure of the  $2p$  shell and the  $2p3d$  interaction treated by a perturbation method similar to that employed by L.K. Izraileva (Izv. AN SSSR, Ser. fiz. 25, 954, 1961) in her calculation of the LII splitting in  $Mn^{2+}$ . (MIRA 1813)

Determination of the effective magnetic moment by the shifts of lines of the  $2p$  shell. (MIRA 1813)

1. Moskovskiy inatitut tonkoy khimicheskoy tekhnologii imeni Lomonosova.

tions, with  $jj$  coupling assumed in the  $2p$  shell and the  $2p3d$  interaction treated by a perturbation method similar to that employed by L.K. Izraileva (Izv. AN SSSR, Ser. fiz. 25, 954, 1961) in her calculation of the LII splitting in  $Mn^{2+}$ . (MIRA 1813)

referred to the considerable difference between a free and a chemically bound ion that subsists even when the bond is ionic. The fact that the magnetic moments of chemically bound ions

SEMINOV, A.V., inzhener; NEPEDOV, V.M., inzhener.

Phototelegraph in railroad transport. Avtom., telem. i svyaz'  
no. 6:3-5 Je '57. (MLRA 10:7)

(Phototelegraphy)

NEFEDOV, V.N.

Gamasid mites of the Tatar A.S.S.R. Uch. zap. Kaz. un. 117 no.9:  
273-277 '57. (MIRA 13:1)

1. Kazanskiy gosudarstvennyy universitet im. V.I. Ul'yanova-Lenina.  
Kafedra zoologii bespozvonochnykh.  
(Tatar A.S.S.R.--Mites)

NEFEDOV, V.N.

Semiautomatic molding on a moving conveyor. Lit.proizv. no.7:40  
Je '60. (MIRA 13:7)

(Foundries--Equipment and supplies)  
(Automatic control)

85671

S. O. 60/078, 006/0-1, 044 AX  
B006/B07C

26.2211

AUTHOR:

Nefedov V N

TITLE:

Mechanism of the Emission of Prompt Fission Neutrons <sup>19</sup>

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960  
Vol. 38, No. 6 pp. 167-177

TEXT. It is generally assumed that fission neutrons are emitted by excited moving fragments. Studies of fission neutron spectra had confirmed this but given no definite indication about the kinetic energy and temperature of fission fragments at the instant of neutron emission. The present study was made for determining the kinetic energy and the fragment temperature. The neutron energy was measured by the usual time-of-flight method. The neutron spectrum was studied by means of a 64-channel fast-neutron spectrometer. The photomultiplier was of the type ФЭУ-1В (FEU-1V). The geometry of the experiment and the circuit (block diagram) are shown in Fig. 1. The chamber was irradiated with a thermal neutron beam ( $10^9$  n/sec cm<sup>2</sup>).

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85671

Mechanism of the Emission  
of Prompt Fission Neutrons

S/O56/60/038/006/013/049/11  
B006/B070

to induce fission of  $U^{235}$ . The fission neutrons were recorded by a stilbene crystal (30x20mm). The neutron spectra were measured for the following angles of emission of the fission fragments: 0°, 30°, 40°, 60°, 80°, and 90°. The three diagrams of Fig. 3 show the experimental spectra taken for the above-mentioned angles. The neutron energy spectra in the laboratory system were calculated from them (see Fig. 4). The neutron spectra of light and heavy fragments were also separately taken (Fig. 5); the corresponding neutron-energy spectra in the laboratory system are shown in Fig. 6. The velocity of the fragment at the instant of neutron emission could be determined from an analysis of the curves. The following values were obtained for heavy ( $v_h$ ) and light ( $v_l$ ) fragments:  $v_h = (0.88 \pm 0.08) \cdot 10^9$  cm/sec and  $v_l = (1.1 \pm 0.12) \cdot 10^9$  cm/sec. These results are in good agreement with those of Ref. 5. To determine the fragment excitation energy, the data for the neutron spectra had to be converted to the rest system of the fragments. Fig. 7 shows the neutron spectra for light and heavy

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05672

Mechanism of the Emission  
of Prompt Fission Neutrons

S/C56/60/038/006/013/043/XX  
8006/8070

fragments in their rest system. The neutron temperatures calculated therefrom were  $T_1 \approx 1.14$  Mev and  $T_2 \approx 1$  Mev. The analysis showed further that light fragments emitted about 30% more neutrons than heavy ones. There are 7 figures and 6 references: 2 Soviet and 4 US.

SUBMITTED: July 29, 1959

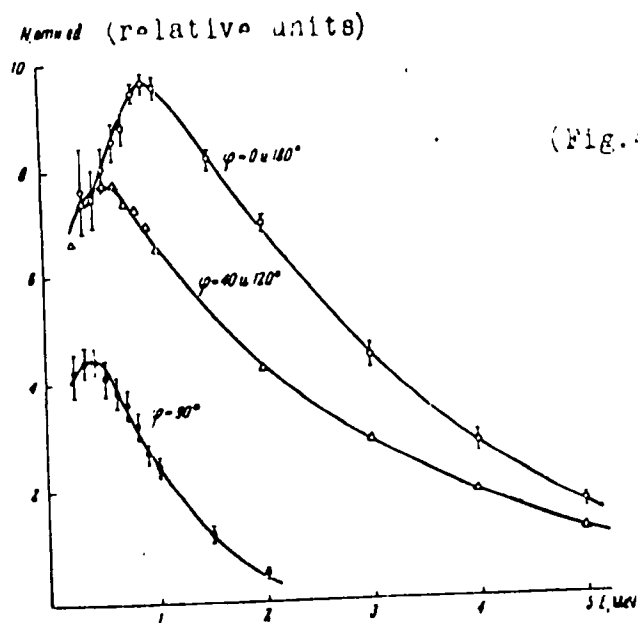
X

Card 3/5

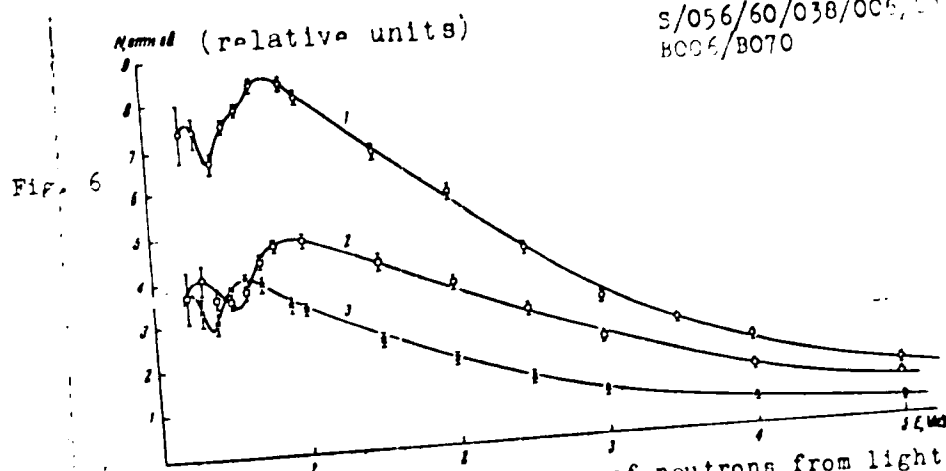
86671

5/056/60/038/006/03/043/XI  
3006/8070

Fig. 4



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Legend to Fig. 6: 1 - total spectrum of neutrons from light and heavy fragments ( $\theta = 0$  and  $180^\circ$ ); 2 - spectrum of neutrons travelling in the direction of emission of light fragments; 3 - spectrum of neutrons travelling in the direction of emission of heavy fragments.

Card 5/5

412-66 LWT(m)  
ACC NR: AP6013729

(A) SOURCE CODE: UR/0089/66/020/004/0342/0342

AUTHOR: Nefedov, V. N.; Kroshkin, N. I.; Kharin, V. P.; Mel'nikov, A. K.

ORG: none

TITLE: The mean neutron spectra from double or triple  $U^{235}$  fission by thermal neutrons  
79

SOURCE: Atomnaya energiya, v. 20, no. 4, 1966, 342

TOPIC TAGS: nuclear fission, uranium, neutron spectrum, thermal neutron

ABSTRACT: Using the time-of-flight method (40 cm of distance) the authors measured the spectrum of prompt neutrons during double and triple fission of  $U^{235}$  nuclei by thermal neutron (see Fig. 1) from the SM-2 reactor. The uranyl nitrate target was 20 mm in diameter and ~2 mg/cm thick. An analysis of the results shows that triple fission is accompanied by ~6.0-6.5  $\gamma$ -quanta. The  $\gamma$ -spectrum of the triple fission is somewhat harder than the one from double fission. Orig. art. has: 1 figure.

Cord 1/2

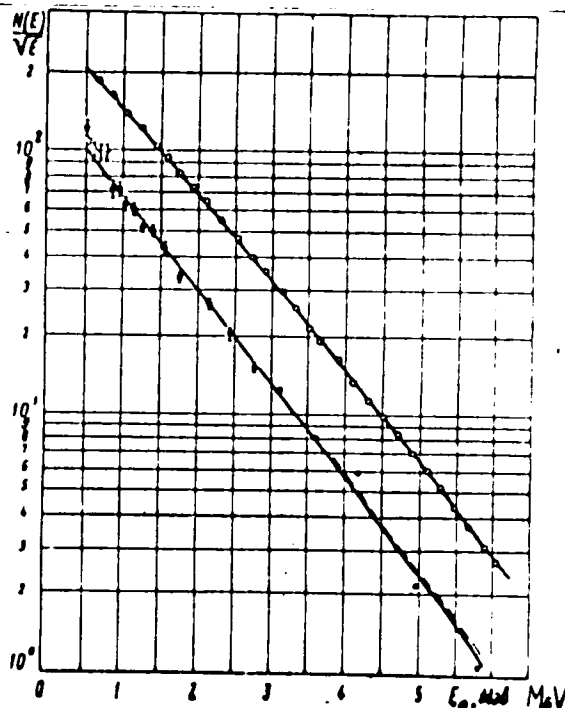
UDC: 539.173.84.539.121.64

L 41224-66

ACC NR: AP6013729

Fig. 1 The spectrum of fission neutrons in the laboratory system of coordinates.

O - double fission; ● - triple fission;  
 - - - - Maxwell distribution ( $T = 1.2$  MeV);  
 — — — Watt's distribution (for double fission  $T = 0.965$  MeV,  $E_f = 0.533$  MeV,  $E = 1.98$  MeV; for triple fission  $T = 0.9$  MeV,  $E_f = 0.5$  MeV,  $E = 1.8$  MeV).



SUB CODE: 18/ SUBM DATE: 07Dec65/ ORIG REF: 001/ OTH REF: 000

NEFEDOV, V.N.; BYRKOVSKIY, V.Ye.

Preliminary data on the zoological and parasitological study  
of foci of tick-borne encephalitis in the Altai Territory.  
Med.paraz.i paraz.bol. no.3:338-341 '62. (MIRA 151)

1. Iz parazitologicheskogo otdela (zav. - A.A. Shesterikova)  
krayovoy sanitarno-epidemiologicheskoy stantsii (glavnyy vrach  
A.Ye. Shestopalova).  
(ENCEPHALITIS) (ALTAI TERRITORY—TICKS AS CARRIERS OF DISEASE)

NEFEDOV, V.N.; BUKHOVSKIY, V.Ie.

Zooparasitic characteristics of tick-borne encephalitis foci  
in the forest-steppe zone of the Altai Territory. Uch.zap.  
Kab. - Bull. gos. un. no.14:105-111'62. (MIHA 16:6)

(ALTAI TERRITORY—ENCEPHALITIS)  
(ALTAI TERRITORY—TICKS AS CARRIERS OF DISEASE)

ASHIMOV, M.A.; KIRSANOV, A.I.; NEFEDOV, V.P.

Using azolyat-A as frothing agent in drilling with air-blast.  
Azerb.khim.zhur. no.6:11-15 '63. (MIRA 17:3)



NEFEDOV, V.P.; OSTROVSKIY, E.Ya.

Geological and geophysical interpretation of aerogeophysical  
materials. Geol. nest. red. elem. no.20:52-84 '63.  
(MIRA 17:5)

1 11667-55 Pb-1/Pa-1 11667  
ACCESSION NR: AP4042131

3/0290/64/000/001/0145/0147

AUTHOR: Levinson, M. S.; Nefedov, V. P.

TITLE: Effect of ultrasonics on yeast RNA solutions under cavitation and noncavitation conditions

SOURCE: AN SSSR. Sibirskoe otdeleniye. Izv. Seriya biologo-meditsinskikh nauk, no. 1, 1964, 145-147

TOPIC TAGS: yeast RNA solution, RNA molecule, ultrasonics, cavitation ultrasonic frequency, noncavitation ultrasonic frequency, optical density change, RNA decomposition, RNA solution concentration, pH change

ABSTRACT: Yeast RNA solutions in concentrations of 0.005, 0.025, and 0.2% were exposed to a cavitation ultrasonic frequency (0.8 mgc) and to noncavitation ultrasonic frequencies (2.4 and 4.0 mgc) of different intensities. The RNA solutions were placed into test tubes and exposed to the ultrasonic frequencies for 15, 30, 45, and 60 min. Ultrasonic effect was determined by optical density change of the RNA solution in the ultraviolet region of the spectrum and was measured

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L 14469-65

ACCESSION NR: AP4042131

by an SF-4 spectrophotometer. Findings show that a cavitation frequency (0.8 mc) and noncavitation frequencies (2.4 and 4.0) affect the RNA molecule differently. With a cavitation ultrasonic frequency of 0.8 mc and a 225 millimicron wave length, the absorption maximum of the RNA solution is reduced compared to control RNA solutions and solutions exposed to noncavitation frequencies. This indicates partial destructive changes in the RNA molecule. Also, the optical density curve is higher for wave lengths ranging from 225 to 240 millimicrons because of the accumulation of hydrogen peroxide and nitrous and nitric acids, whose absorption maximums are within 225 millimicrons and are followed by sharp drops in absorption capacity. The optical properties of all RNA solutions exposed to ultrasonic waves and of control solutions did not change after a two week storage period. In RNA solutions exposed to noncavitation ultrasonic frequencies, the RNA molecule did not undergo any changes. RNA decomposition in a 0.005% solution exposed to a cavitation ultrasonic frequency progressed more rapidly than in 0.25 and 0.2% solutions, which indicates that a considerable part of the hydrogen peroxide and nitrous acid in higher RNA concentrations is expended on RNA reaction. The pH level in RNA solutions was also found to

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L 11169-65

ACCESSION NR: AP4042131

depend on RNA concentration with practically no reduction in the pH of a 0.2% solution. Apparently such compounds as hydrogen peroxide and nitrous and nitric acids, which form when water is exposed to ultrasonic frequencies and which reduce the pH of a solution, are neutralized as a result of RNA reaction. Original art. has: 2 figures.

ASSOCIATION: Institut Fiziki Sibirskogo otdeleniya AN SSSR, Krasnoyarsk (Physics Institute of the Siberian Branch of the AN SSSR)

SUBMITTED: 15Jan63

ENCL: 00

SUB CODE: LS

NR REP SOV: 005

OTHER: 001

Card 3/8

TSINBERG, Ye.D., NEPRIV, V.I. (Kazan')

Some functional and structural changes in the hypothalamus  
in the (auto)immunization of rats. Dokl. Akad. Nauk SSSR 1964.  
(MIR Press)

1. Kafedra patologicheskoy fiziologii (zav. - prof. M.A. Vershin)  
i kafedra patologicheskoy anatomii (zav. - prof. G.G. Nepryakhin)  
Kazanskogo meditsinskogo instituta. Submitted May 12, 1964.

GARANINA, I.P., starshiy nauchnyy sotrudnik; NEKHOD, V.I., st. nauch.

Ascorbic acid content of the adrenal medulla of guinea pigs in anaphylaxis. Dokl. akad. nauk SSSR 241:10-12, 1979.

MEBA 1979

1. Laboratoriya eksperimental'noy fiziologii i patologii (zav. - prof. N.A.Krylova) Kazanskogo veterinarnogo instituta i laboratoriya patofiziologii (zav. - prof. M.A.Yerzin) Kazanskogo meditsinskogo instituta.

L 23470-66 EWT(1)/T JK

ACC NR: AP6013998

SOURCE CODE: UR/0219/65/060/009/0119/0121

AUTHOR: Nefedov, V. P.; Krasovskiy, F. V.

ORG: Laboratory of Biophysics/Headed by I. I. Gitel'zon, Doctor of Medical Sciences, and I. A. Terskov, Doctor of Biological Sciences/, Institute of Physics, Siberian Section, AN SSSR, Krasnoyarsk (Laboratoriya biofiziki Instituta fiziki Sibirskogo otdeleniya AN SSSR)

TITLE: Method of continuous cultivation of animal cells suspended in a flowing system

SOURCE: Byulleten' eksperimental'noy biologii i meditsiny, v. 60, no. 9, 1965, 119-121

TOPIC TAGS: tissue physiology, cell physiology, cell physiology

ABSTRACT: An apparatus which makes it possible to stabilize and regulate the cultivation of cells of warm-blooded animals in suspension in a flowing medium has been designed. The factors relevant to the regulation and stabilization of continuous cell cultivation are the concentration of cells, composition of the gas mixture required, serum content in the nutritive medium, supply of the nutritive medium in accordance with the growth rate of the cells, the pH of the medium, temperature, and circulation rate of the cells in the system. The apparatus has been tested a number of times, with one of these tests carried out in connection with the cultivation of the cardiac tissue of 15-day-old chick embryos. The cell suspension was treated with trypsin. The initial concentration of the cells was  $7 \times 10^6$  in one milliliter; cultivation was carried out on nutritive medium No 199

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UDC: 578.085.23

L 23470-66

ACC NR: AP6013998

7

to which 10 percent bovine serum was added; antibiotics — penicillin and streptomycin — were also added; a gas mixture consisting of five percent CO<sub>2</sub>, 15 percent O<sub>2</sub>, and 80 percent N<sub>2</sub> was supplied; a temperature of 37 ± 0.1 degrees was maintained. Twenty-four hours after the beginning of the experiment the cell concentration increased from its initial level to 9.5x10<sup>6</sup>, and within 48 hours to 12x10<sup>6</sup> per milliliter. It dropped somewhat on the 3d day, but then again increased to 10.5x10<sup>6</sup> in one milliliter, and was finally stabilized at 10x10<sup>6</sup> until the end of the experiment. The percentage content of live cells was high — up to 95-97 percent. This paper presented by N. N. Zhukov-Vereshnikov, Active Member AMN SSSR. The authors thank I. I. Gitel'son and I. A. Terskov for guidance in this work and L. A. Somov, V. P. Veber and V. P. Spiridonov for their assistance in carrying-out the experiments. Further thanks is extended to Professor S. Ya. Zalkind, Institute of Virus Preparations, Moscow, and N. D. Iyerusalinskiy, Institute of Microbiology AM SSSR, Moscow, for their valuable advice and consultations. Orig. art. has: 2 figures. [JPRS]

SUB CODE: .06 / SUBM DATE: 20Mar64 / ORIG REF: 001 / OTH REF: 011

Card 2/2 20



33003

S/641/61/000,000 01. 01

B102/B156

26.2246

AUTHORS: Nefedov, V. A., Popov, V. I., Yuzvitskiy, Yu. S.

TITLE: Gamma radiation in inelastic interaction of neutrons with nuclei

SOURCE: Krupchitskiy, P. A., ed. Neytronnaya fizika; sbornik statey. Moscow, 1961, 324-334

TEXT: Radiative transitions with energies above 1 Mev were studied in nuclei excited with 14-Mev neutrons. An arrangement consisting of a scintillation spectrometer, 14-Mev neutron source and the specimens was used for the  $\gamma$ -spectra measurements. The spectrometer was used to find the gamma energy from the energy of the electron-positron. It consisted of three  $\Phi 39$ -C (FEU-S) photomultipliers with CaI(Tl) crystals and an electronic recording circuit. A tritium-zirconium target bombarded by 400-kev deuterons supplied the neutrons. The following elements were investigated:  $C^{12}$  (graphite),  $O^{16}$  (water) and  $Be^9$ ,  $Mg^{24}$ , Al, Fe and Cu (all as metals). The gamma spectrometer was calibrated with 2.67-Mev  $RaTh$  radiation and 4.43-Mev  $Po-Bi$  radiation. The resolution was between 7 and 14 %, depending on the duration of the measurements, the efficiency was

Card 1, 3

33003

S 641,61,000,000 070 070  
B 02, B 138

Gamma radiation in the last...

$10^{-4}$  per quantum at 1.1 Mev. The spectrometer crystals were shielded against background radiation with a lead cone, the external background was eliminated by subtracting the spectrum without, from that with, the specimen. The cross section calculations were made with an accuracy of 20%. The following results were obtained: Li. No gamma radiation with energy higher than 2 Mev was recorded. Be. Its spectrum was studied up to ~4 Mev. It has two flat peaks at 4.0 and 4.6 Mev.  $C^{12}$ . The spectrum has a high peak at 4.4 Mev which is due to a transition from the first excited state to the ground state. A line at 4.2 Mev was also found with  $\sim 0.01$  b. Transitions from the 0.4-Mev level to the 4.4-Mev level. At higher energies peaks were observed at 4.0 and 4.6 Mev.  $O^{16}$  and  $O^{18}$ . which to occur in  $O^{16}$  and  $O^{18}$  respectively. These are due to transitions from the 0.4-Mev and 0.7-Mev levels to the 4.4-Mev level. The corresponding descending curve with peaks at 4.0, 4.2, 4.4, 4.6, and 4.8 Mev. This is a rotational cross sections were 0.01, 0.01, 0.01, 0.01, and 0.01. The spectrum of the first time the 4.4-Mev level was observed. Me. The spectrum of the sharpest peak at 4.4 Mev. It has minor peaks at 4.0 and 4.6 Mev. caused by  $Na^{24}$  and  $Mg^{24}$  respectively, and distinct peaks at 4.0 and 4.6 Mev. Al. Fe. Co. The Al spectrum has peaks at 4.0, 4.2, 4.4, 4.6, and 4.8 Mev.

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3,641/61 000,000 070 071  
B102/B158

Gamma radiation in the nat.c.

(O.29, O.16, O.09, O.04 and O.01 b.), the Fe spectrum has indistinct peaks at 7.5, 1.1 and 5.0 Mev. O.29, O.14 and O.01 b. and Cu has peaks at 1.1, 5.0 and 4.0 Mev. O.14, O.01 and O.47 b. The mean energies carried off by  $\gamma$ -quanta when the excitation energies exceed 1 Mev are 2, 2.5, 1.1, 4.0 and 5.2 Mev for O<sup>16</sup>, Mg<sup>24</sup>, Al<sup>27</sup>, Fe and Cu. I. M. Frank is thanked for interest, I. V. Shtrankin, A. Ye. Voronkov and V. N. Bochkarev for assistance. There are 4 figures, 4 tables, and 10 non-Soviet references. The four most recent references to English-language publications read as follows: Ajzenberg F., Lauritsen T. Rev. Mod. Phys., 27, no. 1, 77 (1955); Battat M. E., Graves L. R. Phys. Rev., 27, 1266 (1956); Rasmussen W. K., Miller D. W., Sampson M. B. Phys. Rev., 100, 181 (1956); Wakatsuki T., Hirao Y., Okada E., Maeda J. J. Phys. Soc. Japan, 12, 1778 (1957).

Card 3/3

211000

S/120/61/000/002/011/042  
E032/E114

21.5200

AUTHORS: Bochkarev, V.N., and Nefedov, V.V.

TITLE: A scintillation detector for the separate recording of heavy and light analyzing particles

PERIODICAL: Pribery i tekhnika eksperimenta, 1961, No. 2, pp. 80-81

TEXT: The present authors have developed a device for distinguishing between electrons and heavy particles. The detector is based on the following principles. Consider scintillation consisting of two components with decay constants  $\tau_6$  and  $\tau_M$ . Suppose the scintillation is detected by a photomultiplier so that the form of the voltage pulse which appears at its output depends on the ratio of these decay constants and the time constant RC of the photomultiplier output. When  $\tau_6 \ll \tau_M$  this pulse can be divided (in time) into two pulses corresponding to the fast and slow components of the scintillation. In order to carry this out it is sufficient for the time constant RC to be small ( $RC \sim \tau_6$ ) and then after a time interval T, it should suddenly increase to a much larger value. During this interval the fast component will have decayed and the corresponding voltage

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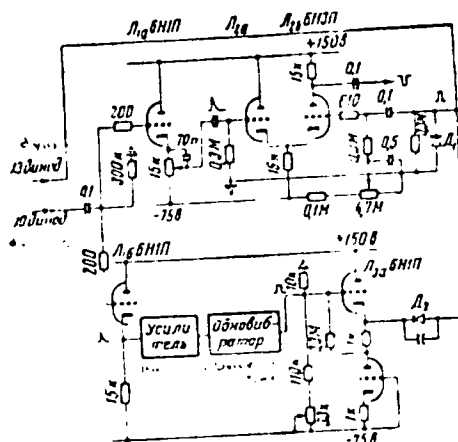
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E032/E114

EC32/E114

A scintillation detector for the ...



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L 16136-63

EWI(m)/RDS

APR/C/ASD

S/2504/62/014/000/0263/0295

ACCESSION NR: AT3001855

AUTHOR: Nefedev, V.V.

TITLE: Determination of the number of secondary neutrons formed upon non-elastic interaction of a fast neutron with a heavy atomic nucleus

SOURCE: AN SSSR. Fizicheskii institut. Trudy, v.14, 1962, 263-295

TOPIC TAGS: secondary neutron, fast, interaction, nonelastic, nucleus, atomic, heavy, cross section, radiochemistry, radioactive, U, Pb, Fe, O, water, energy

ABSTRACT: This paper sets forth the theory and evaluates experimentation relative to the measurement of the cross sections of nuclear reactions by means of a method that is to overcome the limitations of the radiochemical method which is intrinsically limited to those nuclear transformations only in which radioactive products are produced. The method proposed assumes that the mean number of secondary neutrons formed in a single act of nonelastic interaction between a neutron and a nucleus,  $\bar{n}$ , and the cross section of that interaction,  $\sigma$ , are known. Then two conditions relating the "partial" cross sections,  $\sigma_i$ , of the reactions evoked by the nonelastic interactions are prescribed, as is the number of neutrons,

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ACCESSION NR: AT3001855

is emitted by these reactions. The present paper, which comprises the author's dissertation for the degree of Candidate of Physico-Mathematical Sciences, submitted at the Fizicheskii Institut AN SSSR (Physics Institute, AS USSR) in 1954, examines the methodology of the measurement of the mean number of secondary neutrons,  $\bar{\nu}$ , formed in the nonelastic interaction of a fast neutron with a heavy nucleus, and reports measurements of  $\bar{\nu}$  for a number of elements with a primary neutron energy of 14 Mev and also for U with an energy of 2.5 Mev. Chapter I. Methods of measurement of the coefficient  $k$ . Section 1. The principle of the measurement of the number of neutrons formed in the nonelastic collision of a fast neutron and an atomic nucleus. Sec. 2. Methods of moderation. Sec. 3. Method of the all-wave counter. Chapter II. Experiments relative to the determination of the coefficient  $k$ . Sec. 4. Measurement of the coefficient  $k$  by means of an all-wave counter. Sec. 5. Measurement of the coefficient  $k$  by the moderation (deceleration) method. Sec. 6. Discussion of the experimental results. For the case of a point-shaped fast-neutron source, the two methods for the measurement of the coefficient  $k$  are the method of the all-wave counter and the moderation (deceleration) method. In either method the problem of the experiment with a spherical specimen reduces to a comparison of the intensity of the neutron flux emitted by the source with the intensity of the flux emitted by the specimen in the center of which the source is located. In the deceleration method, the fast neutrons are

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L 16136-63

ACCESSION NR: A73001855

decelerated to thermal energy, and the comparison of the fast-neutron fluxes is replaced by a comparison of the corresponding fluxes of the thermal neutrons. The region of applicability of this method is practically limited by the availability of sources with isotropic angular distribution. This method can serve to measure the coefficient  $\nu$  for U at a neutron energy of 14 Mev from a reaction ( $^{235}\text{U} + \text{H}^2$ ). In the all-wave-counter method the comparison of the fast-neutron fluxes is performed by means of a detector having an effectiveness that depends little on the neutron energy. The method is applicable both for an isotropic and for a given anisotropic angular distribution of the primary neutrons. Our measurements show that the effectiveness of the all-wave counter employed for neutrons with energies of 1.5 to 2.5 Mev is identical, whereas for neutrons with energies of 14 Mev it is 22 percent smaller. This method was employed in performing measurements of the coefficient  $\nu$  for U, Pb, Fe, and O with a neutron energy of 14 Mev and for U with a neutron energy of 2.5 Mev. A comparison of the values of the coefficient  $\nu$  obtained by the moderation method and by the all-wave-counter method for U with 14-Mev neutron energy shows that both methods yield mutually consistent results which, within the limits of experimental error, agree with the results of other authors, also. The results of the measurement of the coefficient  $\nu$  were applied to the determination of certain parameters of nuclear transformations of the substances investigated by the author. "In conclusion the author takes

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L 16136-63

ACCESSION NR: AT3001855

decelerated to thermal energy, and the comparison of the fast-neutron fluxes is replaced by a comparison of the corresponding fluxes of the thermal neutrons. The region of applicability of this method is practically limited by the availability of sources with isotropic angular distribution. This method can serve to measure the coefficient  $\nu$  for U at a neutron energy of 14 Mev from a reaction ( $H^3 + H^2$ ). In the all-wave-counter method the comparison of the fast-neutron fluxes is performed by means of a detector having an effectiveness that depends little on the neutron energy. The method is applicable both for an isotropic and for a given anisotropic angular distribution of the primary neutrons. Our measurements show that the effectiveness of the all-wave counter employed for neutrons with energies of 1.5 to 2.5 Mev is identical, whereas for neutrons with energies of 14 Mev it is 22 percent smaller. This method was employed in performing measurements of the coefficient  $\nu$  for U, Pb, Fe, and O with a neutron energy of 14 Mev and for  $\lambda$  with a neutron energy of 2.5 Mev. A comparison of the values of the coefficient  $\nu$  obtained by the moderation method and by the all-wave-counter method for U with 14-Mev neutron energy shows that both methods yield mutually consistent results which, within the limits of experimental error, agree with the results of other authors, also. The results of the measurement of the coefficient  $\nu$  were applied to the determination of certain parameters of nuclear transformations of the substances investigated by the author. "In conclusion the author takes

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L 16136-63

ACCESSION NR: AT3001855

this opportunity to express his gratitude to L. M. Frank (Corr. Member AS USSR) and to Dr. Phys.-Math. Sci. L. V. Groshev for the guidance of the work and discussion of its results. The author also thanks the Scientific Assistant P. M. Musayelyan, who took an active part in the performance of the measurements." An appendix discusses the absorption of fast neutrons by O during moderation in water. Orig. art. contains 9 figs., 8 tables, and 34 numbered equations.

ASSOCIATION: Fizicheskiy institut AN SSSR (Physics Institute, AN SSSR)

SUBMITTED: 00

DATE ACQ: 11Apr63

ENCL: 00

SUB CODE: NS, PH, EL

NO REF SOV: 007

OTHER: 018

Cord 4/4

ACCESSION NR: AP4006813

S/0120/63/000/006/0023/0028

AUTHOR: Bochkarev, V. N.; Nefedov, V. V.

TITLE: Single-crystal gamma-ray scintillation spectrometer with fast neutron discrimination

SOURCE: Pribury\* i tekhnika eksperimenta, no. 6, 1963, 23-28

TOPIC TAGS: neutron bombardment, gamma radiation, radiation spectrum, gamma spectrometer, scintillation spectrometer, gamma radiation spectrum, stilbene crystal, fast neutron discrimination, spectrometer, single crystal, neutron-bombarded hydrogen, neutron-bombarded oxygen, fast neutron bombardment, gamma ray, organic scintillator, hydrogen bombardment, oxygen bombardment, fast neutron, neutron discrimination

ABSTRACT: A new scintillation spectrometer with a stilbene single crystal intended for studying gamma spectra in the presence of fast neutrons is described. The spectrometer consists of a FEU-13 photomultiplier with a 40 x 40-mm stilbene, a UIS-2 nonjamming amplifier, and a BMA-50 pulse-height

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ACCESSION NR: AP4006813

analyzer. The gamma-quantum/neutron discriminator described earlier by the authors (PTE, 1961, no. 2, p. 80) is based on the difference between the light flashes due to electrons and protons in stilbene. The theoretical energy resolution is 13%, 9%, and 7% for the gamma sources  $Zn^{65}$  (1.12 Mev), RhTh (2.65 Mev), and Po + Be (4.43 Mev), respectively. Gamma spectra were measured with 14-Mev neutrons irradiating carbon and oxygen. In addition to the previously known lines, weak 1.60-, 1.84-, and 2.38-Mev lines were detected in the carbon spectrum and 2.2- and 2.7-Mev lines in the oxygen spectrum. The new spectrometer is particularly recommended for gamma-spectrum studies with energies up to 4 Mev. "The authors wish to thank I. M. Frank and I. Ya. Barit for discussing the results, and B. A. Vvedenskiy and V. S. Marty\*nov for their help in the experimentation." Orig. art. has: 9 figures, 5 formulas, and 1 table.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva AN SSSR (Institute of Physics, AN SSSR)

SUBMITTED: 03Jan63

DATE ACQ: 24Jan64

ENCL: 00

SUB CODE: NS, SD

NO REF SOV: 003

OTHER: 002

Card 2/2

ZHIL'TSOV, V.R.; ZELENOV, A.F.; KOKIN, A.G.; KOLOSOV, V.A.;  
KOROBITSYN, M.D.; MALYAVINSKIY, A.M.; NEFEDOV, Ya.D.;  
PAVLOV, A.V.; STEPANOV, Yu.A., prof.; SUVOROV, V.G.;  
YUSHIN, S.I.; POCHTAREV, N.F., kand. tekhn. nauk, inzh.-  
polkovnik, red.; KUZ'MIN, I.F., tekhn. red.

[Internal combustion engines, design and performance] Dviga-  
teli vnutrennego sgoraniia; ustroistvo i rabota. [By] V.R.  
Zhil'tsov i dr. Pod red. I.I.A. Stepanova. Moskva, Voen. izd-vo  
M-va obor. SSSR, 1955. 470 p. (MIRA 16:6)  
(Internal combustion engines)

NEFEDOV, YA. I.,      PODOLN, S. I.

Mining Machinery

Three years service of hammer drills under the guarantee system.      n. 200.  
no. 1, 1951.

9. Monthly List of Russian Accessions, Library of Congress, April \_\_\_\_\_ 1953<sub>2</sub> Unclassified.

PETROV, Yu. N.; NEPEDOV, Ya. N.

Visual measurement devices. Mashinostroitel' no. 12:30 D '62.  
(MIRA 16:1)

(Gauges)

29629

S/142/61/004/003/011/016  
E192/E382

9.1800

AUTHORS: Veselkov, G.P. and Nefedov, Ye.I.

TITLE: Calculation of the matching coatings for dielectric lens antennae

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy,  
Radiotekhnika, v. 4, no. 3, 1961, pp. 337 - 340

TEXT: The problem of reducing the reflection of electromagnetic waves during their incidence at the boundary of two media is of considerable practical importance and has been studied by a number of authors (Ref. 1 - E.M. Jones, S.B. Cohn - J. Appl. Phys., 1955, 26, no. 4, 452; Ref. 2 - Ph. Klass - Voprosy radiolokatsionnoy tekhniki, 1958, no. 2, 44, 181; Ref. 3 - A.F. Harvey - PTEE, 1959, B 106, No. 26, 141; Ref. 4 - R.L. Smedes - IRE Convent. Rec., 1956, 4, No. 1, 208; Ref. 5 - T.B.A. Senior - Electronic and Radio Eng., 1958, 35, No. 4, 135). In particular, it is important to widen the frequency range and the range of the incidence angles at which the reflection coefficient does not exceed a

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Calculation of ....

predetermined value. This problem occurs in wide-band matching of dielectric lens antennae. One of the methods of achieving the required matching is based on the use of quarter-wave dielectric coatings deposited on the system. At a single wavelength it is possible to eliminate the reflection entirely by means of such a coating but this becomes impossible over a finite frequency range. In this case, it is necessary to employ several dielectric layers. In the following a method of design of such a multilayer coating is proposed. The method is based on the concept of the characteristic impedance of a medium (Ref. 6 - L.M. Brekhovskikh - Waves in laminary media, Pub. AN SSSR, 1957) and this results in the possibility of employing the results of the analogous problem of matching two transmission lines by means of wide-band transformers. The method is based on the use of the Chebyshev polynomial and is employed to design a two-layer coating such as shown in Fig. 1. In this case, there exist three local reflection coefficients and these should be proportional to the numbers:

x

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E192/E382

Calculation of ....

1;  $2(1 - 1/t^2)$ ; 1 . These are obtained by comparing the expression for the input reflection coefficient with the Chebyshev polynomial of the second degree:

$$T_2(y) = 2y^2 - 1$$

where  $y = tx$ ,

$x = \cos 2\pi d_1/\lambda_i$  , where  $d_1$  is the thickness of the layer,  
 $\lambda_i$  is the wavelength in the small  $i$ -th layer and  
 $t$  is a multiplier which can be determined from:

$$t = - \frac{1}{\cos \frac{q}{1+q}} \quad (1)$$

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Calculation of ....

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where  $q = \lambda_{\max}/\lambda_{\min}$ , which is the coverage coefficient.

By considering the local reflection coefficients of the coating, it is shown that the unknown reflection coefficients are given by

$$\begin{aligned} n_1 &= n_0 \sqrt{\frac{3r^2 - 2}{4r^2 - 2}} & n_1 &= n_0 \sqrt{\frac{r^2}{4r^2 - 2}} \\ n_2 &= n_0 \sqrt{\frac{r^2}{4r^2 - 2}} & n_2 &= n_0 \sqrt{\frac{3r^2 - 2}{4r^2 - 2}} \end{aligned} \quad (4) \quad \checkmark$$

Now, the overall reflection coefficient of the system with the two quarter-wave layers is expressed by:

$$I = \left| \frac{(n_1 n_2 (1 - n_0) - (n_2^2 - n_1^2 n_0) \lg^2 \varphi) - (n_1 n_2 (1 + n_0) - (n_2^2 + n_1^2 n_0) \lg^2 \varphi)}{(n_1 (n_2 - n_0^2) + n_2 (n_1 - n_0^2) \lg \varphi) - (n_1 (n_2 + n_0^2) + n_2 (n_1 + n_0^2) \lg \varphi)} \right| \quad (5)$$

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E192/E382

Calculation of ....

where  $n_o = 1$  and  $\varphi = \pi \lambda_{cp} / 2\lambda$ . In the explicit form,  
Eq. (5) can be written as:

$$|r| = \frac{1}{2} \ln \frac{n_3}{n_o} \cdot \frac{2t^2 \cos^2 \left( \frac{\pi}{2} \frac{\lambda_{cp}}{\lambda} \right) - 1}{2t^2 - 1} \quad (8)$$

where:

$$\lambda_{cp} = \frac{2\lambda_{min} \cdot \lambda_{max}}{\lambda_{min} + \lambda_{max}} \quad \checkmark$$

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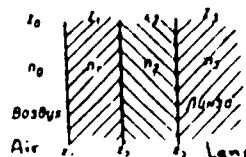
Calculation of ....

The calculations by employing the above formulae show that in comparison with a non-coated dielectric surface, a single-layer coating gives a gain of 2.3, a double-layer binomial coating produces a gain of 4.5 and a double-layer Chebyshev coating yields a gain of 9 ; the gain is defined as a ratio of the reflection coefficient of a non-coated surface to a maximum reflection coefficient for a given coating system. There are 2 figures and 9 references: 4 Soviet-bloc and 5 non-Soviet-bloc. X

ASSOCIATION: Kafedra radioperedayushchikh ustroystv  
Taganrogskogo radiotekhnicheskogo instituta  
(Chair of Radio-transmitting Equipment of  
Taganrog Radio-engineering Institute)

SUBMITTED: June 3, 1960

Fig. 1:



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S/142/61/004/004/014/018  
E192/E382

9.1300 (1144)

AUTHORS: Sovetov, N.M., Klimov, V.A. and Nefedov, Ye.I.

TITLE: Experimental investigation of waveguide and coaxial transformers by using symmetrical analogues

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiotekhnika, v. 4, no. 4, 1961, 488 - 491

TEXT: The matching transformers connecting the output of one line to the input of another line are often employed at UHF. However, although these transformers can be designed analytically, it is difficult to measure their characteristics. A method of investigating such transformers over a wide frequency band is described. This is based on the so-called symmetrical analogue or symmetrical transformer. The system considered is shown in Fig. 1. The symmetrical transformer consists of two ordinary matching transformers, which are connected to each other by their output terminals. The transformers are spaced at a distance  $d_0$  and the generator is connected at the point C; the line is short-circuited at point Q;  $\beta_1$  is the phase constant of the lefthand-side and

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Experimental investigation ....

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the righthand-side sections and  $\beta_0$  is the phase constant of the middle portion of the line;  $\hat{\epsilon}$  is the phase-shift in each transformer.

$\Gamma_1 = \Gamma_1 e^{j\varphi_1}$ ,  $\Gamma_2 = \Gamma_2 e^{j\varphi_2}$  are the reflection coefficients

of the input and output of the transformers and  $T$  is the transmission coefficient of each transformer. Under the assumption that  $\Gamma_1 = \Gamma_2 = \Gamma$ , the field at the initial point  $C$  can be written as:

$$E_c = 2I \left[ \frac{1}{T} \sin(\beta_1 d_1 + \beta_0 d_0 + \beta_1 d_2 - 2\theta) - \frac{1}{T} \sin(\beta_1 d_1 - \beta_0 d_0 - \beta_1 d_2 + 2\theta - \varphi) + T \sin(\beta_1 d_1 + \beta_0 d_0 - \beta_1 d_2 - \varphi) \right] \quad (1)$$

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Experimental investigation

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It is convenient to use the short-circuiting plunger for measuring the reflection coefficient, when the righthand-side terminal is short-circuited the line has a number of node points whose position is determined (Ref 6 - Measurement at ultrahigh frequencies. Izd-vo Sovetskoye radio 1952)

$$\beta_1 d_1 + \beta_0 d_0 + \beta_1 d_2 - 2\phi = n\pi + \delta \quad (2)$$

where  $n = 0, 1, 2, 3$ . The quantity  $\delta$  in Eq. (2) represents a small perturbation parameter. By assuming that  $E_c \neq 0$  and substituting Eq. (2) in Eq. (1) the following expression is obtained

$$\sin \delta = 2|\Gamma_0| \cos(\beta_0 d_0 + \phi) \cos(\delta + 2\phi) - \beta_0 d_0 - 2\beta_1 d_2 \quad (3)$$

where  $\sin \delta = |\Gamma_0|$  where  $|\Gamma_0|$  is the reflection coefficient for the two symmetrically connected devices. From Eq. (3) it

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follows that the reflection coefficient for one of the transformers is expressed in terms of the reflection coefficient of the symmetrical transformer i.e

$$|\Gamma| = \frac{|\Gamma_0|}{2 \cos (\beta_0 d_0 + \phi)} \quad (4)$$

If the transformer parameters are chosen so that the length  $d$  is a multiple of the mean wavelength of the range and  $\phi$  is a multiple of  $2\pi$  Eq. (4) can be written as

$$|\Gamma| = \frac{1}{2} |\Gamma_0| \quad (5)$$

It can be shown that Eq (5) can be used over the whole operating bandwidth of the transformer without introducing a large error. The possibility of using the symmetrical transformations for

Card 4/1

Experimental investigation ....

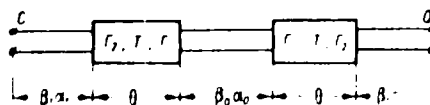
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S/142/61/004/004/014/018  
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measuring the reflection coefficient of the non-symmetrical transformers was verified experimentally by employing Chebyshev-type transformers for a matching impedance ratio of 50:25 and 57:25  $\Omega$ . It is concluded from the experimental data that the above method of measuring the parameters of the matching transformers is fully satisfactory. There are 5 figures and 6 Soviet references.

ASSOCIATION: Kafedra radioperedayushchikh ustroystv Taganrogskogo radiotekhnicheskogo instituta (Department of Radio-transmitting Devices of Taganrog Radio-engineering Institute)

SUBMITTED: September 17, 1960

Fig. 1:



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L 16184-63 ENT(1)/FCS(k)/BDS/EEC-2/EEB-2 ASD/ESD-3/APGC P1-4/PJ-4/P1-4 NR

ACCESSION NO: ARJ005173

2/0078/63/000/006/002/003

SOURCE: MZh. Fizika, Abs. 6 Zh143

AUTHORS: Vozelkov, G. P.; Mafelov, Ye. I.

TITLE: Experimental investigation of two-layer matching coating for a dielectric lens antenna 25B

ORIG SOURCE: Vopr. elektroniki i elektrodinamiki sverkhvysokicheskikh chastot. Taganrog, 1962, 115-118

TOPIC TAGS: dielectric lens, antenna, dielectric coating, double layer

TRANSLATION: Results are reported of an experimental investigation of coatings for lens antennas with Chebyshev characteristic of variation of the refractive index. In particular, in the case of a two-layer coating, the refractive indices of the layers were chosen equal to 1.14 and 1.04. It is noted that the deposition of the coating reduces the reflections in the channel to almost one-half, while the directivity pattern of the lens remains practically unchanged. The question is discussed of the influence of inaccuracies in the refractive indices and in the thickness of the layers on the characteristics of the antenna.

Card 1/1

U/103/62/107/104/104/104  
3266/1307

9,1300

AUTHOR: Alekseyev, Ye.I.

TITLE: Design of slowly varying dielectric inserts in a rectangular waveguide

PERIODICAL: Radiotekhnika i elektronika, v. 7, no. 1, 1962, p. 305

ABSTRACT: The purpose of the paper is to calculate the reflection coefficient at the transition from an empty to a dielectric filled waveguide for an incident  $TE_{01}$  mode. The matching is achieved with the aid of a waveguide section partially filled with dielectric. Two types of matching sections are considered: in the first case the air-dielectric interface is perpendicular to the electric vector, in the second case it is parallel. Thickness of the dielectric in both cases varies from zero to full width. The starting point of the calculations is

$$P = \int_0^{\frac{1}{2}} S_{1,-1} \exp \left( -2i \int_0^z h^2(z, dz) dz \right) \quad (1)$$

Card 1/3

Design of slowly varying dielectric ... 2/102/02/007/005/004/02  
2266, 1967

taken from B.S. Natanson (Sovietya nauka) ...  
... slowly varying parameters) Izd. AN SSSR, 1967 ...  
... reflection coefficient,  $L$  - length of matching section,  $R$ ,  $R_0$ ,  $R_1$  -

backward coupling coefficient in the same mode dependent on the  
electric field configuration and on geometry,  $R_0$  - coupling coefficient  
of the dominant mode. When the boundary of the dielectric  
is parallel to the broad wall of the waveguide the main contribution  
to the reflection coefficient comes from the  $z = 0$  point and the  
effect of the distributed reflection from  $z = 0$  to  $L$  is negligible.  
The reflection coefficient for a wedge-shaped dielectric is a  
monotonic function of frequency which shows the absence of resonance.  
When the dielectric is parallel to the narrow wall of the waveguide,  
a complicated integral expression is obtained which is approximated by  
approximating the integrand by simple functions. The final expression  
for the reflection coefficient is obtained in terms of simple  
integrals. The contribution of the  $z = 0$  point is small and  
mainly the first half of the transformer is responsible for the  
reflection. It is suggested therefore that the second part could be

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Design of slowly varying dielectric ... S/103/52/007/003/004/121  
0200/0107

have steeper without loss of performance. There are 4 figures.

ASSOCIATION: Institut radiotekhniki i elektroniki AN ... Institute  
of Radio Engineering and Electronics AS USSR,

SUBMITTED: September 22, 1961

Card 3/3

NEFEDOV, Ye.I.

Nonstationary phenomena in boundary line refraction of radio waves.  
Radiotekh. i elektron. 8 no.10:1659-1664 O '63. (MIRA 16:10)

1. Institut radiotekhniki i elektroniki AN SSSR.

ACCESSION NR: AP4038616

S/0109/64/009/004/0649/0659

AUTHOR: Kostrov, B. V.; Nefedov, Ye. I.

TITLE: Diffraction by a wide slit in a wide waveguide

SOURCE: Radiotekhnika i elektronika, v. 9, no. 4, 1964, 649-659

TOPIC TAGS: waveguide, wide waveguide, transmission line, planar transmission line, flat strip transmission line

ABSTRACT: The problem of incidence of the dominant mode, in a planar narrow waveguide, on a wide slit is solved in a general form by a method of successive diffractions. The normal field derivative  $u'(x, 0)$  at the slit is found by successive diffractions, each of them being determined by the Wiener-Hopf-Fock method. Amplitudes of the waves that pass by the slit and return are determined from exact formulas of the theory of waveguide excitation. Finally, an asymptotic presentation of the solution suitable for  $ka \gg 1, kL \gg 1, a \sim L$ , where  $k = 2\pi/\lambda$ ,  $a$  is

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ACCESSION NR: AP4038616

a characteristic dimension of the waveguide cross-section, is given. "In conclusion, the authors consider it their pleasant duty to thank B. Z. Katsenelenbaum for his attention to the work and discussing the results." Orig. art. has: 4 figures and 37 formulas.

ASSOCIATION: Institut fiziki Zemli im. O. Yu. Shmidta (Institute of Physics of the Earth); Institut radiotekhniki i elektroniki AN SSSR (Institute of Radio Engineering and Electronics, AN SSSR)

SUBMITTED: 26Feb63

DATE ACQ: 05Jun64

ENCL: 00

SUB CODE: EC

NO REF SOV: 006

OTHER: 006

Card 2/2

L 49805-65 EWT(1)/EBC-4/EWA(h) Pa-4/Pac-4/PeB/P1-4/P1-4

ACCESSION NR: APE010112

UR/0109/65/010/004/0764/0766

AUTHOR: Nefedov, Ye. I.

TITLE: Thin heterogeneous dielectric septum in a wide waveguide 25

SOURCE: Radiotekhnika i elektronika, v. 10, no. 4, 1965, 764-766

TOPIC TAGS: waveguide, quasioptical transmission line

ABSTRACT: The modern theory of lenses is regarded as inadequate for millimeter-band waves. A model consisting of a wide waveguide with a thin plane-parallel heterogeneous dielectric septum can represent the physical aspects of functioning of a quasi-optical signal-transmission line; this model serves as a basis for developing design formulas (4, 9, 12, 13) by the method of longitudinal sections. The formulas describe the field, the amplitude of a passed wave, and the transformation loss. "This author wishes to thank B. Z. Katsenelenbaum for his attention to the work, and Ya. N. Fei'd for his comments." Orig. art. has: 1 figure and 24 formulas.

Card 1/2

L 49807-62  
ACCESSION NR: AP5010112

ASSOCIATION: Institut radiotekhniki i elektroniki AN SSSR (Institute of Radio  
Engineering and Electronics, AN SSSR)

SUBMITTED: 04May64

ENCL: 00

SUB CODE: EC

NO REF SOV: 006

OTHER: 000

*ml*  
Card 3/2

NEVER, V. 1944.

1. The first part of the book is a history of the Soviet Union from 1917 to 1944.

1944

2. The second part of the book is a history of the Soviet Union from 1944 to 1945.

И. И. НЕФЕДОВ Ye. I.

Newly-discovered minerals in the pegmatites of Adun-Chokan  
(Transbaikalia). I. I. Nefedov (Soviet Acad. Sci. U.S.S.R.)  
1961, No. 301-304. The following additional minerals have been  
found in the pegmatites of Adun-Chokan: bismuth, bismuthine,  
cassiterite, zircon, rutile, brookite, staurolite, pailonellane, wad, opal,  
calcite, vitrioparite (a new mineral), schreibite, apatite, kashimite,  
chlorite, phlogopite, and orthite.

Исследования в области минералогии

NEFEDOV, Ye. I.

AK-101

NEFEDOV, Ye. I.

USSR/Mineralogy

Card 1/1

Authors : Zvyagin, B. B. and Nefedov, E. I.

Title : About cookeite

Periodical : Dokl. AN SSSR 95, 6, 1305 - 1308, 21 Apr 54

Abstract : The article says that cookeite has been found in the N. W. of the USSR, and describes cookeite characteristics observed through microscopic, physical (optical, thermal, electrono-graphic), and chemical analyses. There are 2 tables compiled from the technical analysis of cookeite.

Institution : All Union Research Scientific Geological Inst. Leningrad

Submitted : 22 Feb 1954

Nefedov, L.I.

Experiences of determination of secondary minerals in  
oxidized ores. L. I. Nefedov. Trudy Vsesoyuz. Sovetsk.  
kha. Rabotnikh Mineral. (Moscow: Gosudarst.  
Geol. Tekh. Indatel.) 1955, 145-51; Russk. Khim., Khim.  
1956, Abstr. No. 6538. — A scheme is given for study of  
secondary minerals in the zone of oxidation, to include selec-  
tion of samples and their study by optical, phys., and chem.  
methods. Recommended are microchem., spectral and lumina-  
escence analysis, and the study of paragenetic assoc. in the  
oxidation zone and the original ores. M. Vasiloff



VOZNESENSKIY, D.V.; AMELANDOV, A.S.; GEYSLER, A.H.; GOLUBYATNIKOV, V.D.;  
[deceased]; DOMAREV, V.S.; DOMINIKOVSKIY, V.N.; DOVZHIKOV, A.Ye.;  
ZAYTSEV, I.K.; IVANOV, A.A.; ITSIKSON, M.I.; IZOKH, E.P.; KNYAZEV,  
I.I.; KORZHENEVSKAYA, A.S.; MISHAREV, D.T.; SEMENOV, A.I.; MORO-  
ZENKO, N.K.; NEFEDOV, Ye.I.; RADCHENKO, G.P.; SERGIYEVSKIY, V.M.;  
SOLOV'YEV, A.T.; TALDYKIN, S.I.; UNKSOV, V.A.; KHABAKOV, A.V.;  
TSEKHOMSKIY, A.M.; CHUPILIN, I.I.; SHATALOV, Ye.T., glavnyy redak-  
tor; KRASHNIKOV, V.I., redaktor; MIRLIN, G.A., redaktor; RUSANOV, B.S.,  
redaktor; POTAPOV, V.S., redaktor izdatel'stva; GUROVA, O.A., tekhnicheskii redaktor.

[Instructions for organization and execution of geological surveys  
in scales of 1:50,000 and 1:25,000] Instruktsiia po organizatsii  
i proizvodstvu geologo-s"emochaykh rabot masshtabov 1:50,000 i  
1:25,000. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po geol. i  
okhrane neдр. 1956. 173 p. (MLRA 10:6)

1. Russia (1923)- U.S.S.R.) Ministerstvo geologii i okhrany neдр.  
(Geological surveys)

Category: USSR / Physical Chemistry - Crystals

B-5

Abs Jour: Referat Zhur-Khimiya, No 9, 1957, 29659

Author : Nefedov Ye. I.

Inst : All-Union Geological Scientific Research Institute

Title : New Data Concerning Bismuthite

Orig Pub: Inform. sb. Vses. n.-i. geol. in-t, 1956, No 3, 80-82

Abstract: On the basis of roentgenographic and optical investigations of bismuthite ( $\text{BiO}$ ) CO (I), discovered in pegmatites of north-western Karelo-Finish ASSR in the form of relatively large (up to 0.1 mm in diameter), rectangular, translucent plates, it was ascertained that I appertains to the rhombic syngony ( $a$  5.43;  $b$  5.43;  $c$  13.66 kX; F. gr.  $Fmmm$ ), and not to the tetragonal, as was previously reported (Lagercrantz A., Sillen L., Arkiv Kemi, 1948, A 25, No 20, H. 6, 1-21) in connection with studies of synthetic specimens of I. The crystals are biaxial, optically negative;  $n$  2.39;  $n$  2.36;  $n = 2.30$ ;  $2V = 45^\circ$ ;  $n - n$  measured 0.011;  $n - n$  calculated 0.080;  $n$   $[001]$ ,  $n$   $[100]$ . From goniometric data were ascertained simple

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Category: USSR / Physical Chemistry - Crystals

B-5

Abs Jour: Referat Zhur-Khimiya, No 9, 1957, 29659

forms 001 , 111 and 227 . Faces 001 have stria along  $[100]$ . Cleavage cracks not detected. The mineral is brittle, hardness 3-4. The crystals are readily dissolved in acids, in the course of which there are formed, at first, upon the 001 faces etching patterns in the form of square depressions the diagonals of which extend along  $[100]$  and  $[010]$ . On heating of the crystals up to 600° no changes are noted, whereas the synthetic I and finely crystalline I dissociate, according to literature data, at 290°.

Card : 2/2

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Category: USSR / Physical Chemistry - Crystals

R-5

Abs Jour: Referat Zhur-Khimiya, No 9, 1957, 29661

Author : Nefedov Ye. I.

Inst : All Union Geological Scientific Research Institute.

Title : New Data Concerning Fergusonite and Euxenite

Orig Pub: Inform. sb. Vses. n.-i. geol. in-ta, 1956, No 3, 32-35.

Abstract: A study of the properties and a determination (by the rotation method) of lattice parameters of fergusonite (I) and euxenite (II), encountered in non-metamictic state in pegmatites of central Urals. Chemical analysis data are listed. I forms polysynthetic twins along 110 with intergrowth plane 130. Optical properties indicate a monoclinical symmetry of I. Lattice parameters of I in monoclinical setting:  $a$  5.16;  $b$  10.38;  $c$  5.16 kX;  $\beta$  90°;  $Z = 4$ . The author considers that I crystallized initially as a tetragonal modification and later acquired a monoclinical optical nature without appreciable changes in structure; after calcining at above 410° it is transformed into a truly monoclinical modification with a 5.05,

Card : 1/2

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